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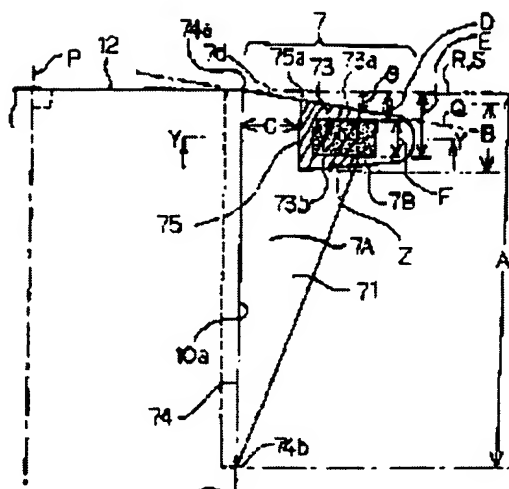
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## (54) ABSORBENT ARTICLE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide an absorbent article such as a disposable diaper to be easily applied, excellent in fitting property around the waist and legs.

SOLUTION: In this absorbent article with a pair of rear side flap parts 7 and 7, each rear side flap part 7 is comprised of an expansible part 7A and a non-expansible part 7B. The ratio of the maximum length B of a joint zone Z in the longitudinal direction to the length A of a first edge part 74 in the expansible part 7A (B/A) is from 0.05 to 0.5, and the ratio of the shortest distance C between the first edge part 74 and the non-expansible part 7B to the length A (C/A) is from 0.05 to 0.5. The angle  $\theta$  between the straight line Q connecting the ends of the first edge part 74 and a second edge part 75 on the side of a waist opening edge part 12 and the straight line R orthogonally crossing the center line P is from 5 to 45 degrees, and the length A is from 1/4 to 1/2 of the total length of the article in the longitudinal direction.



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## CLAIMS

[Claim(s)]

[Claim 1] In the absorptivity goods which it has the surface sheet of liquid permeability, the watertight sheet of liquid impermeability, and the absorber of liquid holdout, are substantially longwise, and have the backside side flap section of a pair in the right-and-left both-sides section of the back Said each of backside side flap section of a pair It consists of the flexible section which consists of an elasticity sheet, and the section which consists of a non-elasticity sheet non-contracting [ expand and ]. This section non-contracting [ expand and ] Have the junction field where this non-elasticity sheet and this elasticity sheet were stuck, and it has the firm attachment section for diaper firm attachment. Die-length A parallel to the center line P of the longitudinal direction of absorptivity goods of the 1st edge which is a edge of the central site of the absorptivity goods in said flexible section, Ratios (B/A) with the maximum B of die length parallel to this center line P of said junction field are 0.05-0.5. Said die-length A, The straight line Q which connects between the edges by the side of the waist opening edge of each 2nd edge which ratios (C/A) with the minimum distance C between the 1st edge and said section non-contracting [ expand and ] are 0.05-0.5, and is the boundary of said 1st edge, and the said flexible section and said section non-contracting [ expand and ] They are the absorptivity goods said whose die-length A the include angle theta with the straight line R which intersects perpendicularly with said center line P to make is 5-45 degrees, and is  $1/4 - 1/2$  of a longitudinal direction overall length. [ of absorptivity goods ]

[Claim 2] Ratios (D/A) with the distance D between said die-length A, the point of said firm attachment section of being most located in a waist opening edge side, and the production S of this waist opening edge are 0.05-0.30. This die-length A, Absorptivity goods according to claim 1 whose ratios (F/A) of this die-length A and the distance F which lengthened said distance D from said distance E ratios (E/A) with the distance E between the point in this firm attachment section of being most located in a length-from-the-crotch-to-the-cuff section side, and this production S are 0.10-0.50, and are 0.05-0.45.

[Claim 3] Said flexible section is absorptivity goods according to claim 1 or 2 for which telescopic motion in two or more directions is attained.

[Claim 4] Said flexible section is absorptivity goods given in any of claims 1-3 currently formed in the flank of the body equipped with said surface sheet, said watertight sheet, and said absorber by fixing the web material of elasticity so that it may extend to a way outside this flank they are.

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## DETAILED DESCRIPTION

## [Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention is easy to equip and it is related with absorptivity goods, such as a disposable diaper excellent in the fit nature of the circumference of the waist, and the circumference of a foot.

[0002]

[Description of the Prior Art] Conventionally, it has the surface sheet of liquid permeability, the watertight sheet of liquid impermeability, and the absorber of liquid holdout, and has the backside side flap section of the pair which has the firm attachment section in the right-and-left both-sides section of the back, and absorptivity goods, such as a disposable diaper with which attaches this backside side flap section firmly to the external surface of an antinode flank through this firm attachment section, and it is equipped, are known widely. For example, the disposable absorptivity goods which equipped the \*\*\*\*\* No. 507409 [ nine to ] official report with the handle part which consists of an elastomeric material are proposed. However, the fit nature of the circumference of the waist is inferior to the fit nature of the circumference of a foot in them, even if the disposable absorptivity goods indicated by this official report are good. Moreover, although the disposable diaper which was going to form two kinds of tape fasteners in the backside side flap section, and was going to aim at improvement in the fit nature of the circumference of the waist and the circumference of a foot is proposed, it is necessary to fix two kinds of fasteners, and wearing actuation is troublesome.

[0003] Therefore, the purpose of this invention is easy to equip and they is to offer absorptivity goods, such as a disposable diaper excellent in the fit nature of the circumference of the waist, and the circumference of a foot.

[0004]

[Means for Solving the Problem] In the absorptivity goods which this invention is equipped with the surface sheet of liquid permeability, the watertight sheet of liquid impermeability, and the absorber of liquid holdout, are substantially longwise, and have the backside side flap section of a pair in the right-and-left both-sides section of the back Said each of backside side flap section of a pair It consists of the flexible section which consists of an elasticity sheet, and the section which consists of a non-elasticity sheet non-contracting [ expand and ]. This section non-contracting [ expand and ] Have the junction field where this non-elasticity sheet and this elasticity sheet were stuck, and it has the firm attachment section for diaper firm attachment. Die-length A parallel to the center line P of the longitudinal direction of absorptivity goods of the 1st edge which is a edge of the central site of the absorptivity goods in said flexible section, Ratios (B/A) with the maximum B of die length parallel to this center line P of said junction field are 0.05-1.0. Said die-length A, The straight line Q which connects between the edges by the side of the waist opening edge of each 2nd edge which ratios (C/A) with the minimum distance C between the 1st edge and said section non-contracting [ expand and ] are 0.05-0.5, and is the boundary of said 1st edge, and the said flexible section and said section non-contracting [ expand and ] The include angle theta with the straight line R which intersects perpendicularly with said center line P to make is 5-45 degrees, and said die-length A attains the above-mentioned purpose by offering the absorptivity goods which are  $1/4 - 1/2$  of a longitudinal direction overall length. [ of absorptivity goods ]

[0005]

[Embodiment of the Invention] Hereafter, this invention is explained based on the desirable 1 operation gestalt. The disposable diaper 1 as absorptivity goods of this operation gestalt is equipped with the body 10 equipped with the surface sheet 2 of liquid permeability, the watertight sheet 3 of liquid impermeability, and the absorber 4 of liquid holdout which has a longwise gestalt substantially.

[0006] The surface sheet 2 and a watertight sheet 3 have a respectively larger dimension than an absorber 4, and pinching immobilization of the absorber 4 is carried out between both [ these ] the sheets 2 and 3. The watertight sheet 3 has extended so that the edges-on-both-sides section may be located in the method of the outside of right and left rather than the edges on both sides 4a and 4a of an absorber 4, with the leg sections 11 and 11 of the pair which meets the both-sides section of a body 10 at the longitudinal direction of the disposable diaper 1 are formed. Moreover, the outer layer sheet 5 made of a nonwoven fabric is arranged, this outer layer sheet 5 has extended in the external surface of a watertight sheet 3 so that the edges-on-both-sides section may be located in the method of the outside of right and left rather than edges-on-both-sides 4a of an absorber 4, and the extension part forms the leg sections 11 and 11 in it with the watertight sheet 3.

[0007] The body 10 is making the longwise abbreviation rectangle-like configuration in the elongation condition (henceforth an elongation condition) which opened the disposable diaper 1 to the plane, and the solid guards 6 and 6 of a right-and-left pair are formed in the both-sides section of the longitudinal direction of a body 10. Each solid guard 6 allots the web material 62 which has an elastic member 61, and is formed, each solid guard's 6 free end 63 is located in the central site of the cross direction of the disposable diaper 1 rather than the end face 64, adhesion immobilization of the web material 62 is carried out [ above an absorber 4 ] at the surface sheet 2, and this end face 64 is formed. As for each web material 62, with the free end, the edge of the opposite side is stuck on a watertight sheet 3 by having extended so that it may be located in the method of outside [ a / of an absorber 4 / side edge 4 ], and the extension part forms the leg sections 11 and 11 with the watertight sheet 3 and the outer layer sheet 5.

[0008] Moreover, the web materials 80 and 80 which have an elastic member are allotted to the both ends of the longitudinal direction of the disposable diaper 1, and the backside solid guard 81 and the venter solid guard 82 are formed in them. In addition, the leg section elastic member for leg gathers formation is not allotted to the leg sections 11 and 11.

[0009] And this disposable diaper 1 has the backside side flap sections 7 and 7 of a pair in the right-and-left both-sides section of back 1A

allotted to a wearer's backside at the time of wear. Each backside side flap section 7 has the firm attachment section 73, and the firm attachment section 73 in this disposable diaper 1 joins the male member of the mechanical fastener on which it comes to implant much projections for engagement by the proper junction approaches, such as joining and adhesion, to one side of the backside side flap section 7, and is formed in it. The male member of a mechanical fastener is made as [ engage / with the attached firmly firmly section 9 of the antinode flank 1B external surface which allotted the female member of a mechanical fastener and was formed / it / free / attachment and detachment ]. As a male member of this mechanical fastener, "the piece of Velcro (trademark) etc." by Kuraray Co., Ltd. etc. can be used, for example.

[0010] **\*\* (ing)** -- said backside side flap sections 7 and 7 of a pair -- each is making the shape of an abbreviation triangle, and abbreviation trapezoidal shape, and consists of flexible section 7A and non-contracting [ expand and ] section 7B which has said firm attachment section 73 for diaper firm attachment.

[0011] As shown in drawing 1 -4, it fixes, and flexible section 7A is formed in flank 10a of a body 10 so that the web material 71 for flap section formation (elasticity sheet) may be projected in a way outside this flank 10a, and has the elasticity which can be expanded and contracted in two or more directions. Telescopic motion of the both sides of the longitudinal direction of a diaper and the cross direction is attained, and in the cross direction of a diaper, it is extensible at least 50% (preferably 50 - 500%), and, more specifically, extensible at least 10% (preferably 10 - 500%) to the longitudinal direction of a diaper.

[0012] Non-contracting [ expand and ] section 7B specifically has some elasticity sheets 71 for flexible section formation, and the junction field Z where some non-elasticity sheets 72 are stuck on the point of the protrusion direction of the elasticity sheet 71, it is formed, and this non-elasticity sheet 72 and this elasticity sheet 71 were stuck. In addition, in this operation gestalt, although the non-elasticity sheet 72 of one sheet is stuck on the elasticity sheet 71, you may also put the elasticity sheet of one sheet with the non-elasticity sheet of two sheets. moreover, the case where the non-elasticity sheet 72 of one sheet is stuck -- the front flesh side of the elasticity sheet 71 -- it may stick on which field side.

[0013] Non-contracting [ expand and ] section 7B is formed in the lateral part of the cross direction of a diaper in 7d of edges by the side of the waist opening edge 12 of the backside side flap section 7, and functions as the knob section at the time of equipping with a diaper. That is, wearing immobilization of this disposable diaper can be carried out at a wearing person by gathering non-contracting [ expand and ] section 7B in a hand, pulling in the direction of antinode flank 1B, and fixing to the attached firmly firmly section 9 of antinode flank 1B external surface through the firm attachment section 73, as this non-contracting [ expand and ] section 7B is shown in drawing 6. In addition, non-contracting [ expand and ] section 7B has the oblong gestalt crosswise [ of a diaper ], and the edge by the side of the method of the outside of a diaper forms the lobe in side edge section 7b in the backside side flap section 7. Moreover, the elongation percentage at the time of pulling non-contracting [ expand and ] section 7B by hand is less than 5%.

[0014] And in said elongation condition, flexible section 7A of the side flap section and non-contracting [ expand and ] section 7B are filling the following relation. That is, the ratios (die-length B / die-length A) with the maximum B of die length parallel to die-length A parallel to the center line P of the longitudinal direction of a diaper 1 of the 1st edge 74 which is a edge of the central site of the disposable diaper 1 in flexible section 7A, and this center line P of said junction field Z are 0.05-0.5, and are 0.1-0.2 more preferably. Since the area of the knob section becomes remarkably small as compared with the area of flexible section 7A when non-contracting [ expand and ] section 7B is gathered in a hand as this ratio is less than 0.05, and it pulls in the direction of antinode flank 1B. If it becomes difficult to make the hauling force of the knob section transmit to the web-material 71 whole for flexible section formation, the fit nature of one of the circumference of the waist and the circumferences of a foot or both falls remarkably and 0.5 is exceeded. When non-contracting [ expand and ] section 7B is gathered in a hand and it pulls in the direction of antinode flank 1B, in wearing of 1 actuation, it gathers, and the hauling force of the section is inclined and transmitted to either the circumference of the waist, or the circumference of a foot, and it becomes difficult to make the circumference of the waist and the circumference of a foot fit coincidence.

[0015] Here with die-length A parallel to the center line P of the longitudinal direction of the diaper 1 of the 1st edge 74. When the 1st edge 74 is parallel to Chuo Line P which extends in the longitudinal direction of a diaper. It is the die length which measured the die length of the 1st edge 74 along this 1st edge 74, and when not parallel to Chuo Line P (the case where it is a curve-like is included), as shown in drawing 5, it is not the die length of 1st edge 74 the very thing, but is the die length which projected the 1st edge 74 on Chuo Line P of the longitudinal direction of a diaper.

[0016] Moreover, the ratios (distance C / die-length A) of said die-length A and the minimum distance C between said non-contracting [ expand and ] section 7B in the 1st edge 74 are 0.05-0.5, and are 0.1-0.25 more preferably. telescopic motion of flexible section 7A is possible in this ratio being less than 0.05 -- a Noh mask -- a possibility that the firm attachment sections may lap in the antinode flank B if the flexible force required for the fit of the circumference of the waist and a foot is not acquired as compared with the area of the side flap section 7 since [ remarkable ] it is small, but a product exceeds 0.5 -- it is -- a diaper -- constitutionally -- not being desirable.

[0017] moreover, the 1st edge 74 and the 2nd edge 75 which is the boundary of flexible section 7A and non-contracting [ expand and ] section 7B -- the include angle theta of the straight line Q which connects between edge 74a by the side of each waist opening edge and 75a, and the straight line R which intersects perpendicularly with said center line P to make is 5-45 degrees, and is 10-35 degrees more preferably. The lateral hauling force concentrates on the waist section that this include angle theta to make is less than 5 degrees. if good fit nature cannot be obtained but it exceeds 45 degrees to the circumference of a foot, the lateral hauling force cannot concentrate on a femoral region, and good fit nature cannot be obtained to the circumference of the waist.

[0018] The ratios (distance D / die-length A) with the distance D between the productions S of said die-length A, point 73a of said firm attachment section 73 most located in the waist opening edge 12 side, and this waist opening edge are 0.05-0.30. Furthermore, this die-length A. The ratios (distance E / die-length A) with the distance E between point 73b in this firm attachment section 73 most located in a length-from-the-crotch-to-the-cuff section side and this production S are 0.10-0.50, and the ratios (distance F / distance A) of this die-length A and the distance F which lengthened said distance D from said distance E are 0.05-0.45. Therefore, the disposable diaper of this gestalt is what was more excellent in the fit nature of the circumference of the waist, and the circumference of a foot.

[0019] In addition, the ratios (D/A) of a starting viewpoint to the outstanding distance D and die-length A by which effect is taken much more effectively are 0.05-0.15, and the ratios (E/A) of this die-length A and distance E are 0.2-0.4, and, as for the ratio (F/A) of this die-length A and distance F, it is more desirable that it is 0.1-0.35. Moreover, edge 74b of the antinode flank 1B approach of the 1st edge 74 in the disposable diaper 1 of this operation gestalt is located in length-from-the-crotch-to-the-cuff section 1C allotted to a wearer's length-from-the-crotch-to-the-cuff section at the time of wear, and the 3rd central field at the time of more specifically dividing a diaper 1 into five equally at a longitudinal direction.

[0020] Moreover, said die-length A parallel to the center line P of the longitudinal direction of a diaper 1 of the 1st edge 74 is or more  $1/4$   $1/2$  or less die length to the longitudinal direction overall length of a diaper. The side flap section is it hard coming to meet a femoral region that said die-length A is less than [ of a diaper overall length ]  $1/4$ , and the fit nature of the circumference of a foot falls. Said die-length A carries out abbreviation etc., and is in the distance between a waist opening edge and the length-from-the-crotch-to-the-cuff section, even if the fit nature of time of the circumference of a foot is good and it makes it most longer than it ( $1/2$  or more [ of a diaper overall length ]), there is no merit and the direction of the demerit in a cost side becomes large.

[0021] Next, the formation ingredient of each part material which constitutes the disposable diaper 1 of this operation gestalt is explained. As a formation ingredient of the surface sheet 2, a watertight sheet 3, an absorber 4, the outer layer sheet 5, the web materials 62 and 80 for solid guard formation, and an elastic member, what is used for a disposable diaper can usually be especially used without a limit.

[0022] Moreover, as a formation ingredient of the web material 71 which forms flexible section 7A, the ingredient of various kinds of well-known elasticity can be used conventionally, for example, the nonwoven fabric to which it was combined with the elastomer and elasticity was given, an elastomer film, elastomer form, etc. can be used preferably. Moreover, as a formation ingredient of said web materials 72 and 73 which form the section non-contracting [ expand and ] in the backside side flap section 7, if the section non-contracting [ expand and ] can be formed, it is not restricted especially but the nonwoven fabric of non-elasticity, textile fabrics, etc. can be used.

[0023] In the disposable diaper 1 of this operation gestalt, as mentioned above, non-contracting [ expand and ] section 7B is fixable to a wearing person at stability by fixing to the external surface of antinode flank 1B through said firm attachment section 73.

[0024] And in this disposable diaper 1, since it is allotted after a part of flexible section 7A has developed at the circumference of the waist at the time of wearing of a diaper at the time of wearing, the fit nature excellent in the circumference of the waist is obtained. Moreover, a part of other flexible section 7A is allotted to the condition of having elongated to the circumference of a wearer's foot, and in order to deform so that the circumference of this foot may be met at a wearer's skin, the fit nature excellent in the circumference of a wearer's foot is obtained. Moreover, since telescopic motion in two or more directions is attained for flexible section 7A, the FITO nature which was excellent even after flexible section 7A stuck along the curved surface of a wearer's body and worked remarkably is maintainable.

[0025] Moreover, in this disposable diaper 1, as mentioned above, even if it is a case so that the baby who can equip easily, for example, should carry a diaper may move violently, it can equip with a diaper easily and quickly.

[0026] As mentioned above, although 1 operation gestalt of this invention was explained, various modification is possible for this invention within limits which are not restricted to the above-mentioned operation gestalt and do not deviate from the meaning of this invention. For example, the firm attachment section may be divided into plurality as shown in drawing 5. In the example of drawing 5, the two firm attachment sections 73 and 76 are formed in the one backside side flap section, and the part in which this firm attachment section 76 was formed also serves as the section non-contracting [ expand and ]. In this case, the maximum B of die length parallel to the diaper center line P of said junction field Z which can be set, and the minimum distance C between the 1st edge 74 and non-contracting [ expand and ] section 7B were shown in drawing 5, respectively. moreover, the radix point of the firm attachment section -- the firm attachment section 73 -- most -- point 73a by the side of the waist opening edge 12, and the firm attachment section 76 -- it is most referred to as point 76b by the side of length-from-the-crotch-to-the-cuff section 1C. That is, distance D, distance E, and distance F are specified as shown in drawing 5.

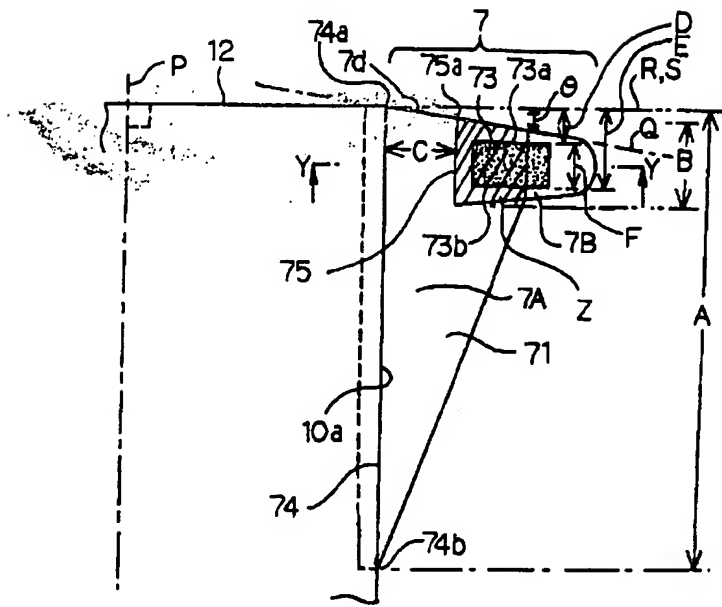
[0027] Moreover, the section non-contracting [ expand and ] can also form successively and form the sheet of non-elasticity in the sheet which forms the flexible section. Moreover, the firm attachment section may apply and form a binder in a sheet front face. Moreover, a hook etc. may be prepared. Moreover, the leg section elastic member for leg gathers formation may be allotted from a viewpoint which raises the fit nature of the circumference of a guide peg. Moreover, this invention is also applicable to others and incontinencia putt, a sanitary napkin, etc. for a baby or an adult. [ diaper / disposable ]

[0028]

[Effect of the Invention] The absorptivity goods of this invention are easy to equip, and they is excellent in the fit nature of the circumference of the waist, and the circumference of a foot.

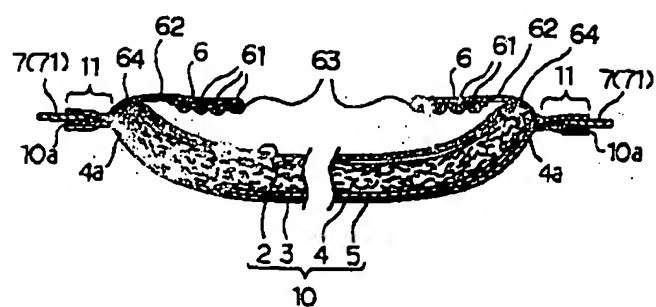
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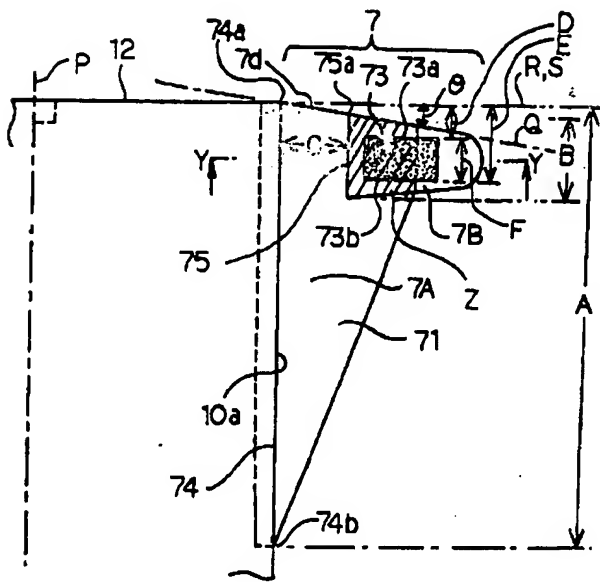
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Drawing selection drawing 2



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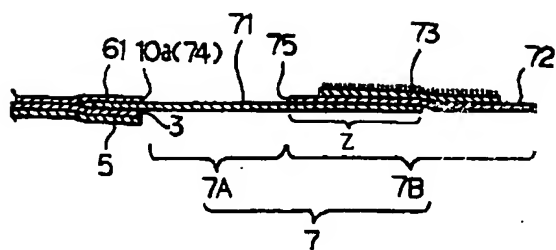
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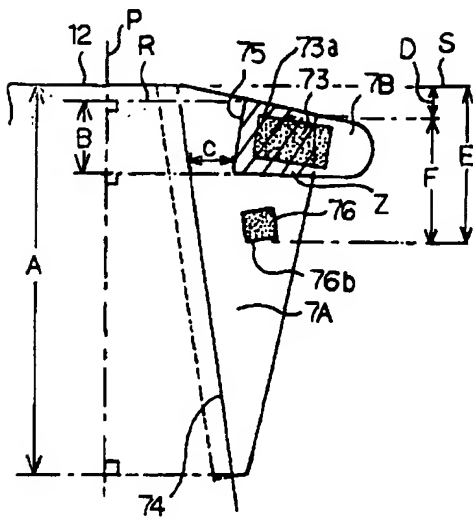


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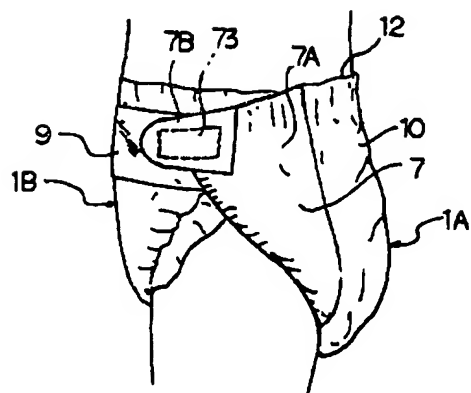
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Drawing selection drawing 6



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